

AMENDMENTS TO THE DRAWINGS

Figures 6A-6C have been labeled as prior art.

Attachment: One (1) Replacement Drawing Sheet (including Figs. 6A-6C)

REMARKS

Claims 3, 4 and 6-9 are all the claims pending in the application. Claims 7-9 have been withdrawn from consideration by the Examiner. Claims 1, 2, and 5, have been canceled without prejudice or disclaimer. Reconsideration and allowance of all the claims are respectfully requested in view of the following remarks.

Election/Restriction

The Examiner acknowledged the election of Group II, claims 3-6. Because claims 1 and 2 are the subject of a divisional application, they have been canceled from this application. Claims 7-9 have been withdrawn from consideration by the Examiner.

Drawings

The Examiner asserted that Figs. 6A-6C should be designated by a legend such as --Prior Art--. Accordingly, Applicant has labeled these figures as --Prior Art--.

Claim Rejections - 35 U.S.C. § 103

The Examiner rejected claims 3-6 under §103(a) as being unpatentable over Japanese 11-179754 (hereinafter JP '754) taken together with Japanese 10-166049 (hereinafter JP '409) in view of US Patent 6,042,364 to Nishida (hereinafter Nishida). Applicant respectfully traverses this rejection because the references fail to teach or suggest all of the elements as set forth in the claims.

Claim 3 sets forth a method for forming a resin hollow body by injection molding, comprising: a primary injection molding forming a pair of primary semi-hollow bodies in a slidable mold and a movable mold; butting open ends of the semi-hollow bodies; and secondary injection molding for uniting the primary semi-hollow bodies, wherein the movable mold is moved at a predetermined degree during the secondary injection molding to thereby fill a space between the but ends with the molten resin, wherein the movable mold is moved at the predetermined degree by the filling pressure of the molten resin.

By way of non-limiting example, as shown in Figs. 3A-4B, one embodiment consistent with that set forth in claim 3 is a method for forming a resin hollow body by injection molding, comprising: a primary injection molding forming a pair of primary semi-hollow bodies A, B in a slidable mold 10 and a movable mold 30 (Fig. 3A); butting open ends of the semi-hollow bodies (Fig. 3B); and secondary injection molding (Fig. 3B) for uniting the primary semi-hollow bodies; wherein the movable mold is moved (Fig. 4A) at a predetermined degree during the secondary injection molding to thereby fill a space S between the butt ends T with the molten resin, wherein the movable mold 30 is moved at the predetermined degree by the filling pressure of the molten resin. That is, the movable mold is moved by the filling pressure of the molten resin for secondary molding. Thus this feature of claim 3 solves the problem of joining not only the joining space but also the butt ends by filling the molten resin between the butt ends, at the same time of filling the molten resin into the joining space. See the present specification at page 11, line 24 to page 12, line 5. According thereto, the presently claimed invention can obtain high joining strength of the joining portion without thinning the butt ends.

On the other had, the cited references fail to teach or suggest this feature.

In contrast to that set forth in claim 3, JP '754 teaches setting the semi-hollow bodies at a gap G and then performing the second injection molding. See Figs. 1(a)-1(c), wherein in Fig. 1(b), the semi-hollow bodies are brought near each other, but are separated by a gap G during the second injection molding; the pressure of the second injection molding does not move a movable mold. After the second injection molding, the semi-hollow bodies are further brought together, as shown in Fig. 1(c). Also, note the arrows on the left side of Figs. 1(b) and 1(c), indicating that the semi-hollow bodies are continuously brought together. Accordingly, there is no step of moving the semi-hollow bodies with the filling pressure of the molten resin during the second injection molding.

In alternative embodiments, of Figs. 2-5, JP '754 still teach a continuous bringing together of the semi-hollow bodies; there is no movement of the hollow bodies by the filling pressure of the molten resin during the second injection molding. See the arrows in these figures

showing that the molds are brought together; they are not moved by the filling pressure of the molten resin.

Despite the above, the Examiner mistakenly asserts that JP '754 teaches a moving away of the molds during the second injection. Specifically, the Examiner asserts "[t]he filling pressure of the molten resin moving the mold is clear from Japanese '754 'the resin R is injected in such a state that the molds 3,4 are slightly opened' ".¹ However, the Examiner's reliance on JP '754 is misplaced. That is, the passage quoted by the Examiner instead means that the molds are in an opened state during the second injection molding. That is the abstract of JP '754 sets forth that the resin R is injected "in such a state", giving the positional relationship between the molds at the time of the injection. If the resin were to move the molds, then the phrase "in such a state" would not be used, and the verb would be a form of "open", not the form "are" of the verb "be". Accordingly, JP '754 does not teach that the injection of the resin R opens the molds.

Neither JP '409 nor Nishida cures the above-noted deficiency in JP '754.

Specifically, as noted by the Examiner, JP '409 teaches the sliding of the slidable mold relative to the movable mold to butt the ends of the semi-hollow bodies. As shown in Figs. 5-8, the molds are brought together to perform the second injection molding. The molds are only moved away from one another to eject the finished product.

Nishida, similarly to JP '409, teaches that after the semi-hollow bodies are butted together, the molds are moved away from one another only to eject the finished product. In an alternative embodiment, and similar to JP '754, Nishida teaches approximating the semi-hollow bodies, performing a second injection molding, and then further pushing the semi-hollow bodies closer to one another. See, for example. Figs. 15-19.

Accordingly, even if one of ordinary skill in the art were motivated to combine JP '754 with JP '409 and Nishida as suggested by the Examiner, any such combination would still not teach or suggest a step of moving the movable mold at a predetermined degree during the

¹ February 6, 2006 Office Action at page 3, lines 6-8.

secondary injection molding to thereby fill a space between the butt ends with the molten resin, wherein the movable mold is moved at the predetermined degree by the filling pressure of the molten resin, as set forth in claim 3.

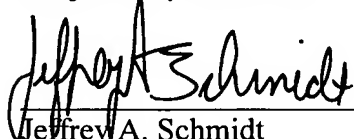
For at least any of the above reasons, JP '754, JP '409, and Nishida, fail to render obvious Applicant's claim 3. Likewise, these references fail to render obvious the dependent claims 4 and 6.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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